

# Nature contact and children's attention

|                                        |                                                               |                                                      |
|----------------------------------------|---------------------------------------------------------------|------------------------------------------------------|
| <b>Submission date</b><br>05/07/2017   | <b>Recruitment status</b><br>No longer recruiting             | <input type="checkbox"/> Prospectively registered    |
| <b>Registration date</b><br>18/07/2017 | <b>Overall study status</b><br>Completed                      | <input type="checkbox"/> Protocol                    |
| <b>Last Edited</b><br>24/12/2019       | <b>Condition category</b><br>Mental and Behavioural Disorders | <input type="checkbox"/> Statistical analysis plan   |
|                                        |                                                               | <input checked="" type="checkbox"/> Results          |
|                                        |                                                               | <input type="checkbox"/> Individual participant data |

## Plain English summary of protocol

### Background and study aims

Children spend less time in nature than ever before and there is concern that this negatively impacts children's cognitive (mental) abilities, particularly their ability to direct their attention. Theories such as the Attention Restoration Theory (ART) suggest that contact with nature may replenish endogenous attention (directed, voluntary attention). There is a lack of research on how contact with nature is associated with attention in children. The aim of this study is to evaluate if children who are exposed to natural environments during a 30 minute reflective walk would be better at endogenous attention.

### Who can participate?

Children aged eight to 15 years old who are able to complete a 30 minute walk.

### What does the study involve?

Prior to treatment, participants in both groups complete the Combined Attention Systems Task (CAST), a series of game-based tasks on a computer to measure attention. Participants are allocated to one of two groups. Those in the first week complete a 30 minute walk through a busy downtown neighbourhood. Those in the second group complete a 30-40 minute walk through a relatively pristine urban forest. After the walk, participants complete the CAST again.

### What are the possible benefits and risks of participating?

There are no direct benefits with participating however participants may benefit from 30 minutes of moderate-to-vigorous physical activity which is known to promote healthy development in children and adolescents. Participants are at risk of boredom, fatigue, and frustration. These risks are reduced by providing breaks to participants during testing or at any time at the request of the participant. Participants are allowed to remove themselves from the study at any time.

### Where is the study run from?

This study is run by Dalhousie University (Canada) and takes place in an urban or forested environment.

### When is the study starting and how long is it expected to run for?

July 2012 to June 2014

Who is funding the study?  
Social Sciences and Humanities Research Council of Canada (Canada)

Who is the main contact?  
Dr Shannon Johnson

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Dr Shannon Johnson

**Contact details**  
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## Additional identifiers

**Protocol serial number**  
2012-2698

## Study information

**Scientific Title**  
Dose-dependent effects of virtual environments on attention

**Study objectives**  
Children who were exposed to natural environments during a 30-minute reflective walk would demonstrate specific improvements in endogenous attention.

**Ethics approval required**  
Old ethics approval format

**Ethics approval(s)**  
Dalhousie University Social Sciences and Humanities Research Ethics Board, 21/08/2012

**Study design**  
Interventional single-centre study

**Primary study design**  
Interventional

## **Study type(s)**

Other

## **Health condition(s) or problem(s) studied**

Exogenous and endogenous attention

## **Interventions**

Participants are assigned to one of two study conditions, either the urban walk or the nature walk. Participants blindly assigned themselves to study condition as they are informed that there were two possible locations to which they could be assigned and then were asked to select a participation date, following which the testing location prescheduled for that date was revealed.

Condition 1 (Urban Walk): Participants engage in a guided walk of a typical urban environment for 30 minutes (around 1.25 miles).

Condition 2 (Natural Walk): Participants engage in a guided walk of a typical urban forested-park environment for 40 minutes (around 1.25 miles)

Participants fill out a demographic and history questionnaire as well as the connectedness to nature scale questionnaire in advance of exposure to either condition. The CAST (Combined Attention Systems Task) is administered to all participants before and after exposure to either condition.

There is no further follow-up to this study.

## **Intervention Type**

Other

## **Primary outcome(s)**

Endogenous and Exogenous attention are measured using the Combined Attention Systems Task (CAST) at baseline and immediately post-treatment.

## **Key secondary outcome(s)**

1. Intelligence quotient (IQ) is measured using the Wechsler Abbreviated Scale of Intelligence (WASI) at baseline
2. Association with nature is measured using Connectedness to nature scale (CNS) at baseline

## **Completion date**

30/06/2014

## **Eligibility**

### **Key inclusion criteria**

1. Aged between 8-15 years
2. IQ:  $\geq 80$
3. Normal or corrected-to-normal vision
4. No history of psychiatric/psychological diagnoses
5. No history of severe head injury
6. No significant neurological disorders affecting the central nervous system

**Participant type(s)**

Healthy volunteer

**Healthy volunteers allowed**

No

**Age group**

Child

**Lower age limit**

8 years

**Upper age limit**

15 years

**Sex**

All

**Total final enrolment**

60

**Key exclusion criteria**

1. Inability to walk for 30 minutes

**Date of first enrolment**

01/10/2012

**Date of final enrolment**

01/10/2013

**Locations****Countries of recruitment**

Canada

**Study participating centre****Dalhousie University**

Department of Psychology and Neuroscience

1355 Oxford Road

Halifax

Canada

B3H4R2

**Sponsor information**

## Organisation

Dalhousie University

## ROR

<https://ror.org/01e6qks80>

## Funder(s)

### Funder type

Research council

### Funder Name

Social Sciences and Humanities Research Council of Canada

### Alternative Name(s)

Conseil de recherches en sciences humaines, Social Sciences and Humanities Research Council, sshrc\_crsh, Conseil de recherches en sciences humaines du Canada, Social Sciences and Humanities Research Council - sshrc crsh, Social Sciences and Humanities Research Council (SSHRC), Conseil de recherches en sciences humaines (CRSH), SSHRC, SSHRC-CRSH

### Funding Body Type

Government organisation

### Funding Body Subtype

National government

### Location

Canada

## Results and Publications

### Individual participant data (IPD) sharing plan

The (de-identified) datasets generated during and/or analysed during the current study are/will be available upon request from Dr. Shannon Johnson ([shannon.johnson@dal.ca](mailto:shannon.johnson@dal.ca))

### IPD sharing plan summary

Available on request

### Study outputs

| Output type                     | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---------------------------------|---------|--------------|------------|----------------|-----------------|
| <a href="#">Results article</a> | results | 05/12/2019   | 24/12/2019 | Yes            | No              |